CLAIMS

1.   A decision support method comprising:
      for two or more pre-defined criteria each criterion associated with one or more
5   pre-defined categories, determining a point value for each category on each
      criterion by the pairwise ranking of profile pairs wherein each profile comprises a
      set of two or more of the criteria, each criterion in the set instantiated with one of
      the categories for that criterion.

10 2.   The method of claim 1 wherein the pairwise ranking of profile pairs includes the
      steps of:
            generating ambiguous profile pairs;
            resolving ambiguous profile pairs; and
            solving the resulting system of equalities/inequalities to obtain point
15   values.

3.   The method of claim 2 comprising the further step of eliminating any profiles that
      are theoretically impossible before proceeding with the pairwise ranking.

20 4.   The method of any one of claims 2 or 3 wherein the step of generating ambiguous
      profile pairs includes reducing all profile pairs in which both profiles in the pair
      have at least one of the same criteria instantiated with the same category.

5.   The method of any one of claims 2 to 4 wherein the step of generating the
25   ambiguous profile pairs comprises the further steps of:
            simultaneously generating all possible ambiguities that are consistent with
            a predefined restricted group of alternatives and storing them on a
            temporary list; and
            creating a second temporary list that initially consists of the alternatives
30   from the predefined restricted group of alternatives;
            and wherein the method comprises the further steps of:

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removing ambiguities from the temporary list as the corresponding
ambiguities are solved;

removing alternatives from the second temporary list as they are found to
be certainly ranked lower than another on the list.

6.   The method of claim 5 further comprising the step of returning a solution
      when the temporary list is empty.

7.   The method of claim 5 further comprising the step of returning a solution when
      the second temporary list contains equally ranked alternatives.

8.   The method of any one of claims 5 to 7 wherein the process of solving
      ambiguities is halted once the temporary list contains no ambiguities between the
      top ranked alternatives and the remaining alternatives, if the number of top ranked
      alternatives is less than or equal to a required number of alternatives.

9.   The method of any one of claims 5 to 7 wherein the process of solving
      ambiguities is halted once the temporary list is empty.

10.   A decision support system comprising:

      two or more predetermined criteria stored in data memory, each criterion
      capable of being instantiated with one or more pre-defined categories; and
      a points calibrator configured to determine point values for each category
      on each criterion by performing the pairwise ranking of profile pairs, each
      profile comprising a set of two or more of the criteria, each criterion in the
      set instantiated with one of the categories for that criterion.

11.   The system of claim 10 wherein the points calibrator further comprises:

      an ambiguity generator configured to generate ambiguous profile pairs;

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12. The system of claim 12 wherein the points calibrator further comprises a data input component configured to receive and store the equalities/inequalities that result from resolving the ambiguous profile pairs generated by the ambiguity generator.

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13. The system of claim 12 wherein the points calibrator further comprises a solution component configured to solve the resulting system of equalities/inequalities to obtain the point values.

10   14. The system of any one of claims 11 to 13 wherein the ambiguity generator is further configured to remove any profiles that are theoretically impossible.

15. The system of any one of claims 11 to 14 wherein the ambiguity generator is further configured to reduce all profile pairs in which both profiles have one or
15   more of the same criteria instantiated with the same category.

16. The system of any one of claims 11 to 15 wherein the ambiguity generator is further configured to:

        generate all possible ambiguities that are consistent with a predefined
20   restricted group of alternatives and storing them on a temporary list;
        create a second temporary list that initially consists of the alternatives
        from the restricted group of alternatives;
        remove ambiguities from the temporary list as the corresponding
        ambiguities are solved by the solution component; and
25   remove alternatives from the second temporary list as they are found to
        be certainly ranked lower than another on the list.

17. The system of claim 16 wherein the points calibrator is further configured to halt the process of generating and resolving ambiguities when the ambiguous profile
30   pairs for the restricted group of alternatives have been resolved.

18.   A decision support computer program comprising:

an initialisation component configured to receive and store data representing two or more criteria and one or more categories with which each criterion may be instantiated; and a points calibrator configured to

5   determine point values for each category on each criterion by performing the pairwise ranking of profile pairs each profile comprising a set of two or more of the criteria, each criterion in the set instantiated with one of the categories for that criterion.

10   19.   The computer program of claim 18 wherein the points calibrator further comprises:

an ambiguity generator configured to generate ambiguous profile pairs;

a resolution component configured to select and display profile pairs to a user to be explicitly resolved and to store the results of the resolution;

15   an ambiguity management component configured to automatically resolve any unresolved ambiguities that can be resolved implicitly; and

a solution component configured to solve the system of resolved inequalities/equalities from the resolution component and the ambiguity management component.

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20.   The computer program of claim 19 further comprising:

a revision component configured to display resolved ambiguities to a user and accept changes to the resolved ambiguities entered by the user.

25   21.   The computer program of any one of claims 19 to 20 further comprising a checking component configured to check the consistency of a user's initial input or revision of explicitly or implicitly resolved ambiguities.

22.   The computer program of any one of claims 18 to 21 further comprising a

30   simulation component configured to estimate the number of ambiguities that must be resolved explicitly by a user for any particular set of criteria and categories.

23.   The computer program of any one of claims 18 to 22 wherein the computer
      program is implemented using linear programming.